

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application.

Listing of Claims:

1. (Previously Presented) Apparatus for extracting gaseous, liquid and/or solid elements from a gaseous medium and concentrating ~~[[them]]~~ said elements in a liquid medium, by nebulizing ~~[[this]]~~ the liquid medium by means of the gaseous medium for producing a mist and condensing the droplets of liquid medium forming the mist produced by ~~[[this]]~~ the nebulization, said apparatus comprising:

a first enclosure for nebulization and condensation, which has an upper part and a lower part intended to contain the liquid medium, ~~[[and]]~~ which is provided with a conduit for delivering the gaseous medium~~[[,]]~~ into the first enclosure and means for nebulizing the liquid medium, and which is connected to a ~~first~~ conduit for discharging the gaseous medium from the first enclosure;

means for depressurizing or pressurizing the interior of the first enclosure to allow the gaseous medium to enter ~~[[this]]~~ the first enclosure, circulate therein and be discharged therefrom, in a continuous flow;

~~and being characterized in that it furthermore comprises:~~

at least one second enclosure for condensation, this second enclosure being connected to the conduit for discharging the gaseous medium from the first enclosure, and being provided with a ~~second~~ conduit for discharging the gaseous medium from the second enclosure; ~~[[and]]~~

means for cooling ~~[[this]]~~ the second enclosure,

wherein the conduit for delivering the gaseous medium into the first enclosure has a first end located outside the first enclosure and a second end housed in the first enclosure;

wherein the means for nebulizing comprises:

a nebulization nozzle which is located level with the second end of the conduit and which has at least one orifice; and

a nebulization tube provided with a first opening which is located in a lower part of the first opening which is located in a lower part of the first enclosure, and a second opening which is flush with the orifice of the nebulization nozzle; and

wherein a connection between the first enclosure and the conduit for discharging the gaseous medium from the first enclosure is located substantially at a same height as the nebulization nozzle, or shifted with regard to the orifice of the nebulization nozzle to the direction opposite to the direction in which the gaseous medium is delivered into the first enclosure.

2. (Canceled)

3. (Currently Amended) Apparatus according to claim ~~[[2]] 1, characterized in that~~ wherein the nebulization nozzle is formed by a reduction in the cross section of the gaseous medium delivery conduit ~~[[of]]~~ for delivering the gaseous medium into the first enclosure.

4. (Currently Amended) Apparatus according to claim ~~[[2]] 1, characterized in that~~ wherein the nebulization nozzle consists of a piece attached to the second end of the gaseous medium delivery conduit ~~[[of]]~~ for delivering the gaseous medium into the first enclosure.

5. (Currently Amended) Apparatus according to claim ~~[[2]] 1, characterized in that~~ wherein the orifice of the nebulization nozzle is oriented towards the upper part of the first enclosure, and the second opening of the nebulization tube is located immediately above this orifice.

6. (Currently Amended) Apparatus according to claim ~~[[2]] 1, characterized in that~~ wherein the first enclosure is composed of three parts:

a reservoir which forms the lower part of the first enclosure and which is intended to contain the liquid medium;

a nebulization chamber which forms the intermediate part of the first enclosure and which houses the orifice of the nebulization nozzle and the second opening of the nebulization tube; and

a condensation dome which forms the upper part of the first enclosure.

7. (Currently Amended) Apparatus according to claim 6, ~~characterized in that~~, wherein the second enclosure having a base and a top, the first conduit for discharging the gaseous medium is a conduit with a bend which connects the nebulization chamber of the first enclosure to the base of the second enclosure.

8. (Currently Amended) Apparatus according to claim ~~[[2]]~~ 1, ~~characterized in that~~ wherein the orifice of the nebulization nozzle is oriented towards the lower part of the first enclosure, and the second opening of the nebulization tube is located immediately below this orifice.

9. (Currently Amended) Apparatus according to claim ~~[[2]]~~ 1, ~~characterized in that~~ wherein the first enclosure is ~~preferably~~ composed of two parts:

a reservoir which forms the lower part of this first enclosure and which is intended to contain the liquid medium, which reservoir has a bottom whose surface area is less than a cross section of this reservoir, this cross section being flush with the surface of the liquid medium when the apparatus is operational; and

a nebulization chamber which forms the upper part of the apparatus and which houses the orifice of the nebulization nozzle and the second opening ~~(133b)~~ of the nebulization tube.

10. (Currently Amended) Apparatus according to claim 9, ~~characterized in that~~ wherein the reservoir has a shape which tapers from the bottom upwards.

11. (Currently Amended) Apparatus according to claim 9, ~~characterized in that~~ wherein the nebulization chamber ~~has two walls~~: an outer wall onto which the first conduit for discharging the gaseous medium in the first enclosure is to be connected, and an inner wall which is located entirely above and at a distance from the reservoir, ~~[[this]]~~ the inner wall

dividing the nebulization chamber in order to form a central part located inside the inner wall and a peripheral part located between the outer wall and the inner wall, the second opening of the nebulization tube and the orifice of the nebulization nozzle being housed in ~~[[the]]~~ said central part.

12. (Currently Amended) Apparatus according to claim 9, ~~characterized in that,~~ wherein the second enclosure ~~having~~ has a base and a top, and the ~~first~~ conduit for discharging the gaseous medium from the first enclosure is a conduit with a bend which connects the nebulization chamber of the first enclosure to the base of the second enclosure.

13. (Currently Amended) Apparatus according to claim 8, ~~characterized in that~~ wherein the first enclosure comprises an element for stabilizing the surface of the liquid medium, this element being intended to lie below and at a short distance from this surface when the apparatus is operational, while allowing the drops due to the condensation of the mist to pass through.

14. (Currently Amended) Apparatus according to claim 1, ~~characterized in that~~ wherein the means for cooling the second enclosure are a Peltier effect cell.

15. (Currently Amended) Apparatus according to claim 1, ~~characterized in that~~ wherein the second enclosure contains packing.

16. (Currently Amended) Apparatus according to claim 1, ~~characterized in that~~ wherein the lower part of the first enclosure is provided with at least one system for detecting or quantitatively determining the gaseous, liquid and/or solid elements extracted from the gaseous medium and concentrated in the liquid medium when the apparatus is operational.

17. (Currently Amended) Apparatus according to claim 1, ~~characterized in that~~ wherein the lower part of the first enclosure is removable.

18. (Currently Amended) Apparatus according to claim 1, ~~characterized in that~~ wherein the first enclosure and the second enclosure can be dismantled, and ~~in that their~~ wherein the constituent parts of the first and second enclosures are connected together in a leaktight fashion when ~~[[these]]~~ said enclosures are assembled.

19. (Currently Amended) Apparatus according to claim 1, ~~characterized in that it~~ which comprises means for depressurizing the interior of the first enclosure, and ~~in that these~~ which means are a suction pump which is connected to the second conduit for discharging the gaseous medium.

20. (Currently Amended) Apparatus according to claim 1, ~~characterized in that it~~ which furthermore comprises an electrical power supply system comprising means for connection to an external electrical power source and electrical power supply means for its autonomous operation.

21. (Currently Amended) Apparatus according to claim 1, ~~characterized in that it~~ which is in the form of a compact structure which can be carried or pulled by a single person.

22. (Withdrawn) Method for extracting gaseous, liquid and/or solid elements from a gaseous medium and concentrating them in a liquid medium, by nebulizing this liquid medium by means of the gaseous medium and condensing the droplets of liquid medium forming the mist produced by this nebulization, characterized in that said droplets are subjected to a condensation by coalescence on a wetted surface and to a condensation by contact with a cold surface.

23. (Withdrawn) Method according to claim 22, characterized in that the condensation of the droplets by coalescence on a wetted surface and the condensation of the droplets by contact with a cold surface are carried out in two enclosures which are separate from each other but are connected together.

24. (Withdrawn) Method according to claim 22, characterized in that the condensation of the droplets by contact with a cold surface is carried out in a refrigerated enclosure which contains packing.

25. (Withdrawn) Method according to claim 22, characterized in that the liquid medium comprises one or more solvents selected from water, organic solvents and mixtures thereof.